10/701151

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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	

Application Number 10/701,151	Patent No. 7,248,233
Filing Date November 4, 2003	Issue Date: July 24, 2007
First Named Inventor	Jean-Michel Moreau
Art Unit	2629
Examiner Name	R. A. Hjerpe
Attorney Docket Number	S1022.81097US00

ENCLOSURES (*Check all that apply*)

- [ ] Fee Transmittal Form
  - [ ] Fee Attached
- [ ] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [x] Request for Certificate of Correction
- [x] Certificate of Correction
- [x] Title Page and Col. 4 of 7,248,233
- [x] Copy of Declaration and Power of Attorney
- [x] Copy of Pages 1 and 2 of European Patent No. 0330045.6
  - [ ] Reply to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
  - [ ] Landscape Table on CD
- [ ] After Allowance Communication to TC
- [ ] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- [ ] Proprietary Information
- [ ] Status Letter
- [x] Other Enclosure(s) (please Identify below):

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Remarks

Certificate AUG 01 2007 of Correction

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	WOLF, GREENFIELD & SACKS, P.C.		
Signature			
Printed name	James H. Morris		
Date	July 27, 2007	Reg. No.	34,681

Certificate of Mailing Under 37 CFR 1.8(a)

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as First Class Mail, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Dated: July 27, 2007

Signature: Gail Driscoll (Gail Driscoll)

AUG 2 2007

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- [ ] Proprietary Information
- [ ] Status Letter
- [x] Other Enclosure(s) (please identify below):

Return Receipt Postcard

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	WOLF, GREENFIELD & SACKS, P.C.		
Signature			
Printed name	James H. Morris		
Date	July 27, 2007	Reg. No.	34,681

Certificate of Mailing Under 37 CFR 1.8(a)

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Dated: July 27, 2007

Signature: _____ (Gail Driscoll)

Docket No.: S1022.81097US00
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Jean-Michel Moreau
Serial No.:	10/701,151
Confirmation No.:	5508
Filed:	November 4, 2003
Patent No.:	7,248,233
For:	CONTROL CIRCUIT AND PROCESS FOR A CATHODE RAY TUBE DISPLAY CONTROL APPARATUS
Examiner:	R. A. Hjerpe
Art Unit:	2629

Certificate of Mailing Under 37 CFR 1.8(a)
I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as First Class Mail, in an envelope addressed to: Attention: Certificate of Correction Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Dated: July 27, 2007

Gail Driscoll

REQUEST FOR CERTIFICATE OF CORRECTION PURSUANT TO 37 CFR 1.322

Attention: Certificate of Correction Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Upon reviewing the above-identified patent, Patentee noted typographical errors which should be corrected.

In the Specification:

On the title page, item (30), foreign application priority data should show the European priority date as July 1, 2003.

In column 4, line 48 the reference indicator for time should be "t0" not "to" as shown in issued U.S. Patent No. 7,248,233. Therefore, column 4, line 48 should read as shown below.

--At a time t0, voltage V66 follows a step increase ΔV--

In support of this request Patentee encloses herewith highlighted copies of: page 6 of the application as filed, declaration and power of attorney, pages 1 and 2 of European 03300045.6, title page and column 4 of U.S. Patent No. 7,248,233.

No check is enclosed however, if the Examiner deems a fee necessary, the fee may be charged to the account of the undersigned, Deposit Account No. 23/2825.

Transmitted herewith is a proposed Certificate of Correction effecting such amendment. Patentee respectfully solicits the granting of the requested Certificate of Correction.

Dated: July 27, 2007

Respectfully submitted,

By: _____

James H. Morris
Registration No.: 34,681
WOLF, GREENFIELD & SACKS, P.C.
Federal Reserve Plaza
600 Atlantic Avenue
Boston, Massachusetts 02210-2206
(617) 646-8000

The successive display of a dark zone and a bright zone on the screen corresponds to a step increase of the cathode current supplied to cathode 6, which corresponds to a step increase ΔV of the voltage across resistor 66. In response to the step increase ΔV, filter 62 delivers a filtered compensation voltage $Vf = \Delta V.e^{(-t/RC)}$, which after integration gives a correction voltage Vcor proportional to $\Delta V.RC.(1-e^{(-t/RC)})$. The inventor has shown that such a correction voltage, added to the usual control voltage provided by the feedback block, compensates the step increase of the cathode current. A reciprocal correction is caused when a dark zone is displayed after a bright zone on the screen.

FIG. 3 illustrates exemplary variations of voltage V66 across resistor 66, and of the corresponding voltage Vc supplied by buffer 70, filtered voltage Vf and correction voltage Vcor, during an exemplary operation of the display of FIG. 2. The shape of the curves is only intended to be illustrative.

Initially, voltage V66 corresponds to the display of a dark picture and remains at a low value, while comprising voltage peaks shorter than the display time of a small number of lines. The variations of voltage Vc corresponds to the variations of current Icat, smoothed by filter 66, 68. As long as Vc is constant, Vf remains null. The variations of voltage Vc, slow, are suppressed by filter 62 and voltage Vf is constant. Correction voltage Vcor is constant.

At a time t0, voltage V66 follows a step increase ΔV corresponding to the display of a plurality of bright lines. Since the step increase lasts longer than a small number of lines, voltage Vc follows a same step increase ΔV. The influence of filter 66, 68 is hardly visible at this scale. As described above, in response to step increase ΔV of voltage Vc, filter 62 delivers filtered voltage $Vf = \Delta V.e^{(-t/RC)}$ and integrator 48 delivers, in addition to the usual control voltage provided by the feedback block, the correction voltage Vcor proportional to $\Delta V.RC.(1-e^{(-t/RC)})$.

At a time t1 is illustrated a reciprocal correction corresponding to a step reduction of voltage V66, when a dark zone is displayed above a bright zone.

Due to the control circuit according to the invention, the transformer delivers to the horizontal deviation yoke of the display a substantially constant power through its

Declaration and Power of Attorney for Patent Application

Déclaration et Pouvoirs pour Demande de Brevet

French Language Declaration

En tant que l'inventeur nommé ci-après, je déclare par le présent acte que:

Mon domicile, mon adresse postale, et ma nationalité sont ceux figurant ci-dessous à côté de mon nom.

Je crois être le premier inventeur original et unique (si un seul nom est mentionné ci-dessous), ou l'un des premiers co-inventeurs originaux (si plusieurs noms sont mentionnés ci-dessous) de l'objet revendiqué, pour lequel une demande de brevet a été déposée concernant l'invention intitulée:

_____

_____

et dont la description est fournie ci-joint à moins que la case suivante n'ait été cochée:

☐ a été déposée le_____sous le numéro de demande des Etats-Unis ou le numéro de demande international PCT _____

☐ les specifications portant le dossier de l'avocat numero _____

et modifiée le _____ (le cas échéant).

Je déclare par le présent acte avoir passé en revue et compris le contenu de la description ci-dessus, revendications comprises, telles que modifiées par toute modification dont il aura été fait référence ci-dessus.

Je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, §1.56 du Code fédéral des réglementations.

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

CONTROL CIRCUIT AND PROCESS FOR A CATHODE RAY TUBE DISPLAY CONTROL APPARATUS

the specification of which is attached hereto unless one of the following boxes is checked:

☒ was filed on November 4, 2003 as United States Application Number 10/701,151

☒ the specification of which bears attorney docket No.S1022.81097US00

and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

PTO/SB/105(Rev. 5-95) OMB 0651-0032

French Language Declaration

Je revendique par le présent acte avoir la priorité étrangère, en vertu du Titre 35, §119(a)-(d) ou § 365(b) du Code des Etats-Unis, sur toute demande étrangère de brevet ou certificat d'inventeur ou, en vertu du Titre 35, § 365(a) du même Code, sur toute demande internationale PCT désignant au moins un pays autre que les Etats-Unis et figurant ci-dessous et, en cochant la case, j'ai aussi indiqué ci-dessous toute demande étrangère de brevet, tout certificat d'inventeur ou toute demande internationale PCT ayant une date de dépôt précédant celle de la demande à propos de laquelle une priorité est revendiquée.

Prior foreign application(s)
Demande(s) de brevet antérieure(s)

03300045.6	Europe	
(Number) (Numéro)	(Country) (Pays)	
(Number) (Numéro)	(Country) (Pays)	

I hereby claim foreign priority under Title 35, United States Code, §119(a)-(d) or § 365(b) of any foreign applications(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below, and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed:

	Priority not claimed Droit de priorité non revendiqué
1 July 2003 (Day/Month/Year Filed) (Jour/Mois/Année de dépôt)	☐
(Day/Month/Year Filed) (Jour/Mois/Année de dépôt)	☐

Je revendique par le présent acte tout bénéfice, en vertu du Titre 35 §119(e) du Code des Etats-Unis, de toute demande de brevet provisoire effectuée aux Etats-Unis et figurant ci-dessous.

(Application No.) (N° de demande)	(Filing Date) (Date de dépôt)
(Application No.) (N° de demande)	(Filing Date) (Date de dépôt)

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

Je revendique par le présent acte, le bénéfice, en vertu du Titre 35 § 120 du Code des Etats-Unis, de toute demande de brevet effectuée aux Etats-Unis, ou en vertu du Titre 35, § 365(c) du même Code, de toute demande internationale PCT désignant les Etats-Unis et figurant ci-dessous et, dans la mesure où l'objet de chacune des revendications de cette demande de brevet n'est pas divulgué dans la demande antérieure américaine ou internationale PCT, en vertu des dispositions du premier paragraphe du Titre 35, § 112 du Code des Etats-Unis, je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code Fédéral des réglementations, dont j'ai pu disposer entre la date de dépôt de la demande antérieure et la date de dépôt de la demande nationale ou internationale PCT de la présente demande:

(Application No.) (N° de Demande)	(Filing Date) (Date de Dépôt)
(Application No.) (N° de Demande)	(Filing Date) (Date de Dépôt)

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or § 365(c) of any PCT international application(s) designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

(Status)(Patented, pending abandoned) (Statut)(breveté, en cours d'examen, abandonné)
(Status)(Patented, pending abandoned) (Statut)(breveté, en cours d'examen, abandonné)

Je déclare par le présent acte que toute déclaration ci-incluse est, à ma connaissance, véridique et que toute déclaration formulée à partir de renseignements ou de suppositions est tenue pour véridique; et de plus, que toutes ces déclarations ont été formulées en sachant que toute fausse déclaration volontaire ou son équivalent est passible d'une amende ou d'une incarcération, ou des deux, en vertu de la Section 1001 du Titre 18 du Code des Etats-Unis, et que de telles déclarations volontairement fausses risquent de compromettre la validité de la demande de brevet ou du brevet délivré à partir de celle-ci.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

French Language Declaration

POUVOIR: En tant que l'inventeur cité, je désigne par la présente l'(les) avocat(s) et/ou agent(s) suivant(s) pour qu''il(s) poursuive(nt) la procédure de cette demande de brevet et traite(nt) toute affaire s'y rapportant avec l'Office des brevets et des marques comme defini par le numéro d'enregistrement du cabinet.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith as defined by Customer Number

23628

et les avocats et/ou agents suivants:

and the Practitioners named below:

Lisa K. Jorgenson, Reg. No. 34,845
Mario J. Donato, Jr, Reg. No.. 37,816
Nainesh Shah, Reg. No. 40,166

Adresser toute correspondance à:

Address correspondence to:

James H. Morris
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600 Atlantic Avenue, Boston, MA 02210-2211(USA)

Adresser tout appel téléphonique à: *(Nom et numéro de téléphone)*

Direct Telephone Calls to: (name and telephone number)

James H. Morris
(617) 720-3500

Nom complet de l'unique ou premier inventeur	Full name of sole or first inventor Jean-Michel MOREAU
Signature de l'inventeur Date	Inventor's signature Date Jean-Michel Moreau 22 Decembre 2003
Domicile	Residence 2, Rue Louis Vidal, G38100 Grenoble, France
Nationalité	Citizenship French
Adresse Postale	Post Office Address 2, Rue Louis Vidal, G38100 Grenoble, France
Nom complet du second co-inventeur, le cas échéant	Full name of second or joint inventor
Signature de l'inventeur Date	Inventor's signature Date
Domicile	Residence
Nationalité	Citizenship
Adresse Postale	Post Office Address

(Fournir les mêmes renseignements et la signature de tout co-inventeur supplémentaire.)

(Supply similar information and signature for third and sub-sequent joint inventors.)

AUG 2 2007

Europäisches Patentamt	European Patent Office	Office européen des brevets

Bescheinigung | Certificate | Attestation

Die angehefteten Unterlagen stimmen mit der ursprünglich eingereichten Fassung der auf dem nächsten Blatt bezeichneten europäischen Patentanmeldung überein.

The attached documents are exact copies of the European patent application described on the following page, as originally filed.

Les documents fixés à cette attestation sont conformes à la version initialement déposée de la demande de brevet européen spécifiée à la page suivante.

Patentanmeldung Nr. Patent application No. Demande de brevet n°

03300045.6

Der Präsident des Europäischen Patentamts;
Im Auftrag

For the President of the European Patent Office

Le Président de l'Office européen des brevets
p.o.

R C van Dijk

AUG 2 2007

Anmeldung Nr:
Application no.: 03300045.6
Demande no:

Anmeldetag:
Date of filing: 01.07.03
Date de dépôt:

Anmelder/Applicant(s)/Demandeur(s):

ST MICROELECTRONICS S.A.
29 Boulevard Romain Rolland
92120 Montrouge
FRANCE

Bezeichnung der Erfindung/Title of the invention/Titre de l'invention:
(Falls die Bezeichnung der Erfindung nicht angegeben ist, siehe Beschreibung.
If no title is shown please refer to the description.
Si aucun titre n'est indiqué se referer à la description.)

CONTROL CIRCUIT AND PROCESS FOR A CATHODE RAY TUBE DISPLAY CONTROL APPARATUS

In Anspruch genommene Priorität(en) / Priority(ies) claimed /Priorité(s) revendiquée(s)
Staat/Tag/Aktenzeichen/State/Date/File no./Pays/Date/Numéro de dépôt:

Internationale Patentklassifikation/International Patent Classification/
Classification internationale des brevets:

G09G/

Am Anmeldetag benannte Vertragstaaten/Contracting states designated at date of filing/Etats contractants désignées lors du dépôt:

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL
PT RO SE SI SK TR LI

US007248233B2

(12) **United States Patent**
Moreau

(10) **Patent No.: US 7,248,233 B2**
(45) **Date of Patent: Jul. 24, 2007**

(54) **CONTROL CIRCUIT AND PROCESS FOR A CATHODE RAY TUBE DISPLAY CONTROL APPARATUS**

(75) Inventor: **Jean-Michel Moreau**, Grenoble (FR)

(73) Assignee: **STMicroelectronics S.A.**, Montrouge (FR)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 626 days.

(21) Appl. No.: **10/701,151**

(22) Filed: **Nov. 4, 2003**

(65) **Prior Publication Data**

US 2004/0130275 A1 Jul. 8, 2004

(30) **Foreign Application Priority Data**

Jul. 1, 1999 (EP) 03300045

(51) **Int. Cl.**
G09G 1/06 (2006.01)

(52) **U.S. Cl.** **345/11**; 345/12; 345/13

(58) **Field of Classification Search** 345/10, 345/11, 12, 13, 14, 29
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,717,296 A * 2/1998 Onozawa et al. 315/371
6,573,669 B1 * 6/2003 Chiu 315/388

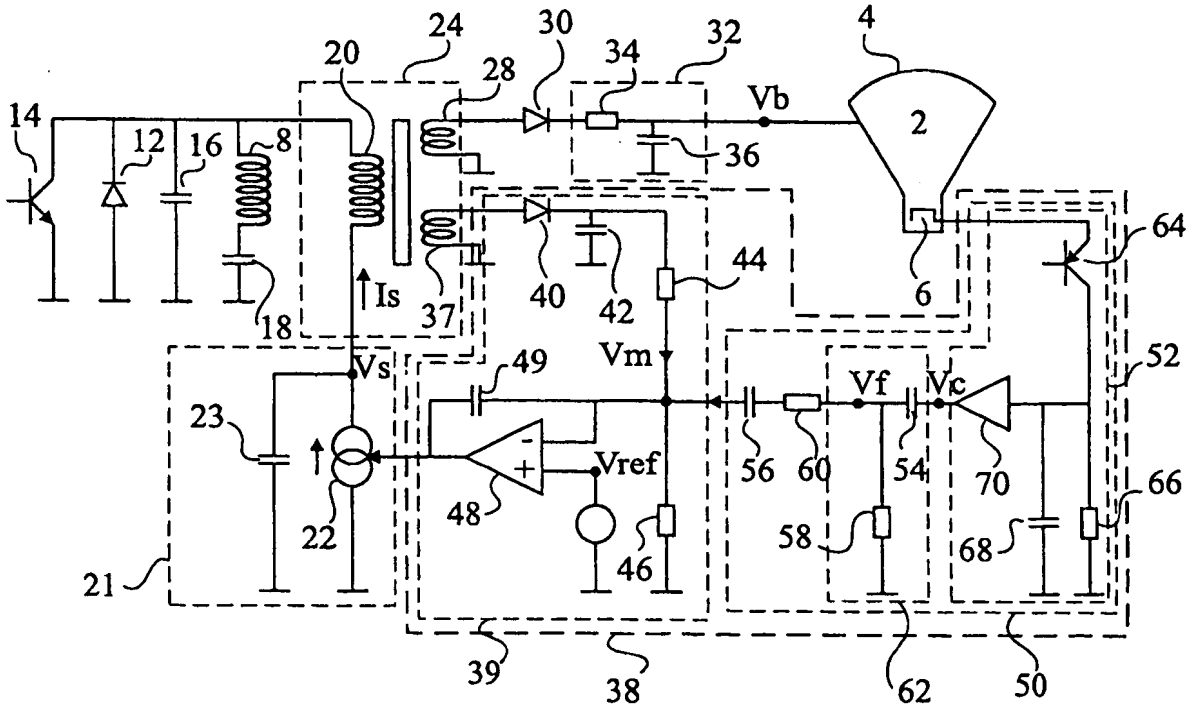
* cited by examiner

Primary Examiner—Richard Hjerpe
Assistant Examiner—Jean Lesperance
(74) *Attorney, Agent, or Firm*—Lisa K. Jorgenson; James H. Morris; Wolf, Greenfield & Sacks, P.C.

(57) **ABSTRACT**

A control circuit of a power supply delivering a supply current to an inductor connected in series with the horizontal deflection yoke of a cathode ray tube display, the inductor being the primary coil of a transformer operatively connected for delivering a rectified low-pass filtered biasing voltage to the anode of the display, the low-pass filtering having a first time constant corresponding to the duration of a plurality of pictures, the control circuit having feedback circuitry for generating a monitoring voltage substantially proportional to the biasing voltage and for controlling the supply current to keep the monitoring voltage equal to a reference voltage; and feedforward circuitry for measuring the cathode current and for adding to the monitoring voltage a compensation voltage corresponding to the cathode current, low-pass filtered with a second time constant corresponding to the duration of a small number of lines and high-pass filtered with the first time constant.

22 Claims, 2 Drawing Sheets



Accordingly, the present invention relates to a control circuit of a power supply delivering a supply current to an inductor connected in series with the horizontal deflection yoke of a CRT display for displaying pictures comprised of successive lines, said inductor also being the primary coil of a low/high transformer operatively connected for delivering a rectified low-pass filtered biasing voltage to the anode of the display, said low-pass filtering having a first time constant corresponding to the display time of a plurality of pictures.

In particular, said control circuit comprises a feedback block generating a monitoring voltage substantially proportional to the biasing voltage of the anode and controlling the supply current so as to keep the monitoring voltage equal to a reference voltage; and a feedforward block for measuring the cathode current supplied to the cathode of the display tube and for adding to the monitoring voltage a compensation voltage corresponding to the cathode current, low-pass filtered with a second time constant corresponding to the display time of a small number of lines and high-pass filtered with said first time constant.

BRIEF DESCRIPTION OF THE DRAWINGS

The features and advantages of the present invention can be more readily understood with reference to the following description and appended claims when taken in conjunction with the accompanying drawings wherein:

FIG. **1** is a schematic view of a prior art display control apparatus;

FIG. **2** is a schematic view of a first embodiment of a display control apparatus in accordance with the present invention;

FIG. **3** illustrates an exemplary operation of the display control apparatus illustrated in FIG. **2**; and

FIG. **4** is a partial, schematic view of a feedforward block in accordance with a preferred embodiment of the present invention.

DETAILED DESCRIPTION

FIG. **2** illustrates a schematic view of a first embodiment of an exemplary control apparatus according to the present invention of a CRT display **2** having an anode **4** and a cathode **6**. The same reference numbers designate the same elements in FIG. **1** and **2**. Only the elements that are necessary to the understanding of the invention have been illustrated. The control apparatus is generally comprised of a horizontal yoke control unit, an anode biasing unit, a power supply **21** and a control circuit **38** comprising a feedback block **39** operatively connected as described in relation with FIG. **1**.

According to the invention, the control circuit **38** comprises, in addition to the elements disclosed in connection with FIG. **1**, a feedforward block **50** comprising a measuring unit **52**, capacitors **54** and **56**, and resistors **58** and **60**. Measuring unit **52** senses the cathode current of the CRT, and provides a corresponding voltage Vc. Voltage Vc is supplied to a first end of capacitor **54**. The second end of capacitor **54** is connected through resistor **58** to the ground. Capacitor **54** and resistor **58** form a high-pass filter **62**. The second end of capacitor **54**, corresponding to the output of filter **62** is connected, through resistor **60** and coupling capacitor **56** in series, to the inverting input of amplifier **48**.

According to a first embodiment of the invention, unit **52** is comprised of a driving transistor **64** having its emitter connected to the cathode **6**, its collector connected to the ground through a sensing resistor **66**, and its base operatively connected to receive a video signal. A capacitor **68** is connected in parallel with resistor **66**. A buffer **70** is preferably connected between the collector of transistor **64** and the output of unit **52**.

The buffer **70** of the feedforward block delivers to filter **62** a voltage Vc corresponding to the cathode current flowing through resistor **66**, filtered by the parallel connection of resistor **66** and capacitor **68**. Preferably, the low-pass filter **66–68** is chosen to introduce a time constant of a few lines, i.e. 0.1 ms, so as to smooth the cathode signal.

In filter **62**, capacitor **54** and resistor **58** are chosen so as to filter the voltage signal Vc provided by buffer **70** with a time constant RC substantially equal to the time constant of filter **32** so as not to take into account slow variations of the smoothed cathode signal and to give the filtered voltage an appropriate time constant, as explained below. The voltage supplied by filter **62** through the coupling capacitor is integrated by the amplifier **48**, configured as an integrator by capacitor **49**. Resistor **60** provides for tuning the compensation voltage.

The successive display of a dark zone and a bright zone on the screen corresponds to a step increase of the cathode current supplied to cathode **6**, which corresponds to a step increase ΔV of the voltage across resistor **66**. In response to the step increase ΔV, filter **62** delivers a filtered compensation voltage $Vf=\Delta V.e^{(-t/RC)}$, which after integration gives a correction voltage Vcor proportional to $\Delta V.RC.(1-e^{(-t/RC)})$. The inventor has shown that such a correction voltage, added to the usual control voltage provided by the feedback block, compensates the step increase of the cathode current. A reciprocal correction is caused when a dark zone is displayed after a bright zone on the screen.

FIG. **3** illustrates exemplary variations of voltage V**66** across resistor **66**, and of the corresponding voltage Vc supplied by buffer **70**, filtered voltage Vf and correction voltage Vcor, during an exemplary operation of the display of FIG. **2**. The shape of the curves is only intended to be illustrative.

Initially, voltage V**66** corresponds to the display of a dark picture and remains at a low value, while comprising voltage peaks shorter than the display time of a small number of lines. The variations of voltage Vc corresponds to the variations of current Icat, smoothed by filter **66**, **68**. As long as Vc is constant, Vf remains null. The variations of voltage Vc, slow, are suppressed by filter **62** and voltage Vf is constant. Correction voltage Vcor is constant.

At a time to, voltage V**66** follows a step increase ΔV corresponding to the display of a plurality of bright lines. Since the step increase lasts longer than a small number of lines, voltage Vc follows a same step increase ΔV. The influence of filter **66**, **68** is hardly visible at this scale. As described above, in response to step increase ΔV of voltage Vc, filter **62** delivers filtered voltage $Vf=\Delta V.e^{(-t/RC)}$ and integrator **48** delivers, in addition to the usual control voltage provided by the feedback block, the correction voltage Vcor proportional to $\Delta V.RC.(1-e^{(-t/RC)})$.

At a time t1 is illustrated a reciprocal correction corresponding to a step reduction of voltage V**66**, when a dark zone is displayed above a bright zone.

Due to the control circuit according to the invention, the transformer delivers to the horizontal deviation yoke of the display a substantially constant power through its primary coil, while the power delivered to the biasing unit follows the variations of the cathode current, thereby eliminating dynamic breathing.

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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO.	:	7,248,233
APPLICATION NO.	:	10/701,151
ISSUE DATE	:	July 24, 2007
INVENTOR(S)	:	Jean-Michel Moreau

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the title page, item (30) should read:
Jul. 1, 2003 (EP) 03300045

Col. 4, line 48 should read:
At a time t0, voltage V66 follows a step increase ΔV

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